

**FUTURE FISHERIES IMPROVEMENT PROGRAM
GRANT APPLICATION***(please fill in the highlighted areas)***I. APPLICANT INFORMATION**

- A. Applicant Name: The Nature Conservancy in Montana
- B. Mailing Address: 32 South Ewing Street
- C. City: Helena State: MT Zip: 59601
- Telephone: (406) 443-0303 E-mail: ehendel@tnc.org
- D. Contact Person: Nathan Korb, Southwest Montana Science and Stewardship Director
- Address if different from Applicant: _____
- City: _____ State: _____ Zip: _____
- Telephone: (406) 443-0303 E-mail: nkorb@tnc.org
- E. Landowner and/or Lessee Name
(if other than Applicant): _____
- Mailing Address: _____
- City: _____ State: _____ Zip: _____
- Telephone: _____ E-mail: _____

II. PROJECT INFORMATION*

- A. Project Name: Long Creek Incised Channel Restoration Project
- River, stream, or lake: Long Creek
- Location: Township: 13 S Range: 04 W Section: 21, 28, 29
- Latitude: 44.68751 Longitude: -112.102233 *within project (decimal degrees)*
- County: Beaverhead

B.

Purpose of Project:

The purpose of the Long Creek project is to re-establish a self-maintaining floodplain environment characterized by more frequent distributary and sheet flow activation that result in an improved and more resilient ecological condition for Arctic grayling relative to present conditions. By reestablishing these conditions, we expect to maximize the ecological potential of both the river and floodplain over a period of several years and improve the creek's response to anticipated climatic changes that may include increased periods of drought and/or unusually large runoff events.

C. **Brief Project Description:**

Long Creek is the most significant tributary to Red Rock River upstream of Lima Reservoir and draining from the north side of the Centennial Valley. Long Creek supports a small population of Arctic grayling and was identified by past investigations to be in poor functional condition from the confluence with the Red Rock River upstream through the Conservancy's property. The lack of functionality is attributed to: 1) channel incision ranging between 2 to 4.25 feet which has detached the floodplain from normal runoff events; 2) high rates of bank erosion and fine sediment export; 3) partial dewatering resulting in poor low-flow habitat conditions for fish; 4) absence of low-water habitat diversity and; 5) absence of recruiting young or existing mature streamside woody vegetation.

The current project builds on the design criteria and success of a similar project undertaken by the Conservancy and J Bar L ranch downstream in 2014. In that project, 7 deformable grade structures composed of cobble and sod reconnected approximately 2 miles of incised channel with its floodplain, including seasonal activation of 7,000 feet of formerly abandoned side channels.

The proposed project expands on the pilot project and includes a more comprehensive monitoring plan consisting of upstream and downstream continuous surface discharge monitoring and recording groundwater piezometer transects. Project costs associated with monitoring are not included in our proposal's budget spreadsheet. We will be partnering with Montana State University to evaluate the hydrologic effects of the project and will be working out a budget with them at a later time.

The project includes construction of 9 armored riffle and sod grade controls over approximately 3.7 miles of channel. Average spacing between controls is approximately 2,000 feet due to the low channel slope (average = 0.25%), average backwater lengths behind each structure will be approximately 500 feet. This spacing will result in heterogeneous channel conditions ranging from backwatered to the current riffle pool morphology. As the channel aggrades following project completion the extent of backwatered channel will progressively decrease as backwatered areas convert to a pool/riffle morphology.

D. **Length of stream or size of lake that will be treated:**

3.7 miles of Long Creek

E. Project Budget:

Grant Request (Dollars): \$ 25,000

Contribution by Applicant (Dollars): \$ 23,010 In-kind \$
 (salaries of government employees are not considered as matching contributions)

Contribution from other Sources (Dollars): \$ 13,000 In-kind \$
 (attach verification - See page 2 budget template)

Total Project Cost: \$ 61,010

F. Attach itemized (line item) budget – see template

G. Attach specific project plans, detailed sketches, plan views, photographs, maps, evidence of landowner consent, evidence of public support and fish biologist support, and/or other information necessary to evaluate the merits of the project. If project involves water leasing or water salvage complete supplemental questionnaire (fwp.mt.gov/habitat/futurefisheries/supplement2.doc).

H. Attach land management and maintenance plans that will ensure protection of the reclaimed area.

III. PROJECT BENEFITS*

A. What species of fish will benefit from this project?

Arctic grayling (*Thymallus arcticus*)

B. How will the project protect or enhance wild fish habitat?:

This project will temporally improve fisheries habitat for all life stages and seasons. During bankfull flows the project will significantly increase the quantity of velocity refugia over shallower and rougher surfaces. At minimum flow periods a progressively narrowing main channel will provide more favorable depth profiles.

C. Will the project improve fish populations and/or fishing? To what extent?:

Long Creek has an existing small population of Arctic grayling and was identified by past investigations to be in poor functional condition from the confluence with the Red Rock River upstream through the Conservancy-owned property. The objective of this project is to restore the project area to a dynamically stable system that has a markedly improved level of aquatic and terrestrial ecological potential, especially for the Arctic grayling population.

D. Will the project increase public fishing opportunity for wild fish and, if so, how?

While this reach has not historically been popular for fishing, we have never denied requests for fishing access and the project is expected to improve fish habitat thereby improving fishing opportunities along this reach as well as upstream and downstream of the project site.

- E. The project agreement includes a 20-year maintenance commitment. If you are unable to meet this commitment, please explain why:

We are committed to improving the long-term condition of this fishery and agree to the 20 year maintenance commitment.

- F. What was the cause of habitat degradation in the area of this project and how will the project correct the cause?

The need for ecological restoration in the project area is based primarily on identified degraded geomorphic conditions that have reduced the ecological potential of Long Creek. Recognized contributing factors to this geomorphic degradation include the following:

- Past livestock grazing practices that degraded riparian communities and reduced natural woody plant recruitment
- Altered flow regimes due to irrigation withdrawal
- Loss of beavers as agents of floodplain complexity and resilience
- Incision and associated lowering of the floodplain water table
- Aggravated levels of sediment production from chronic bank erosion
- Invasive pasture grass species
- Reduced levels of sediment capture on stable surfaces
- Elevated water temperatures

Since acquiring the property in 2009, several of these issues have been addressed. Livestock use along the entire length of Long Creek has been changed using single-strand, wildlife-friendly fencing; several thousand willows have been planted using nursery-grown, locally sourced seedlings and dormant stakes; irrigation infrastructure has been improved; and water rights are being changed to instream use to improve late-season conditions. However, these improvements have not adequately addressed the channel incision and lack of floodplain function. Rather than waiting decades for Long Creek to gradually re-establish a new floodplain and hydrologic function, we intend to reconnect the creek with its natural historic floodplain through installation of selective deformable grade structures and re-establish a dynamically stable channel and riparian condition.

- G. What public benefits will be realized from this project?

We anticipate that the proposed project will result in a restored riparian area, a healthier fishery and improved water quality and quantity in Long Creek. The guiding image for the floodplain is the re-establishment of a temporally and spatially diverse hydroperiod that will result in a significant expansion of seasonal and perennial wetland area and the natural recruitment of woody riparian vegetation that increases habitat diversity and floodplain resiliency. Re-charging the shallow aquifer may also result in a net increase in base flow through return flows from groundwater. These on-site project benefits translate into public benefits by improving habitats for a myriad of migratory bird, upland game, and fish species and through downstream delivery of larger quantities of cold and clear late-season water.

- H. Will the project interfere with water or property rights of adjacent landowners? (explain):

No, this project will not interfere with water or property rights of adjacent landowners.

- I. Will the project result in the development of commercial recreational use on the site?: (explain):

No, the project will not result in the development of commercial recreational use on the site.

- J. Is this project associated with the reclamation of past mining activity?:

No, the project is not associated with the reclamation of past mining activity.

Each approved project sponsor must enter into a written agreement with the Department specifying terms and duration of the project.

IV. AUTHORIZING STATEMENT

I (we) hereby declare that the information and all statements to this application are true, complete, and accurate to the best of my (our) knowledge and that the project or activity complies with rules of the Future Fisheries Improvement Program.

Applicant Signature:



Date:

November 25, 2015

Sponsor (if applicable):

***Highlighted boxes will automatically expand.**

**Mail To: Montana Fish, Wildlife & Parks
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701**

**E-mail To: Michelle McGree
mmcgree@mt.gov
(electronic submissions MUST be signed)**

**Incomplete or late applications will be returned to applicant.
Applications may be rejected if this form is modified.**

***** Applications may be submitted at anytime, but must be received by the Future Fisheries Program office in Helena before December 1 and June 1 of each year to be considered for the subsequent funding period.*****

Both tables must be completed or the application will be returned

WORK ITEMS (ITEMIZE BY CATEGORY)	NUMBER OF UNITS	UNIT DESCRIPTION*	COST/UNIT	TOTAL COST	CONTRIBUTIONS			
					FUTURE FISHERIES REQUEST	IN-KIND SERVICES**	IN-KIND CASH	TOTAL
Contractual Services					20,120.00		16,990.00	\$ 37,110.00
Contractual Services (Personnel)								
Survey				\$ -				\$ -
Design	16	hours	\$110.00	\$ 1,760.00				
Engineering				\$ -				\$ -
Permitting				\$ -				\$ -
Oversight	40	hours	\$110.00	\$ 4,400.00				
Labor - Foreman	12	hours	\$60.00	\$ 720.00				
Labor	50	hours	\$45.00	\$ 2,250.00				
			Sub-Total	\$ 9,130.00		\$ -	\$ -	
Contractual Services (Travel)								
Mileage				\$ -				\$ -
Per diem includes: 3 people x 4 nights @ \$100/ea.	1	Lump	\$1,200.00	\$ 1,200.00				
Time	6	hours	\$110.00	\$ 660.00				
			Sub-Total	\$ 1,860.00		\$ -	\$ -	
Contractual Services (Equipment)								
Cat 220 D Excavator Install	54	hours	\$160.00	\$ 8,640.00				\$ -
Cat 220 D Excavator Clean- up	10	hours	\$160.00	\$ 1,600.00				\$ -
950 Loader	40	hours	\$150.00	\$ 6,000.00				\$ -
Haul Truck	28	hours	\$150.00	\$ 4,200.00				\$ -
Grizzly Screen rental	1	Lump	\$880.00	\$ 880.00				\$ -
				\$ -				\$ -
			Sub-Total	\$ 21,320.00	\$ -	\$ -	\$ -	\$ -
Contractual Services (Mobilization)								
All Inclusive:	1	Lump	\$4,800.00	\$ 4,800.00				\$ -
Excavator				\$ -				\$ -
Loader				\$ -				\$ -
Grizzly Screen								

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

Haul Truck				\$	-				\$	-	
			Sub-Total	\$	4,800.00		\$	-	\$	-	
Riparian Restoration Materials***											
Dormant Pole Plantings Spring 2016	3500	Each	\$2.00	\$	7,000.00			7,000.00	\$	7,000.00	
Dormant Willow Pole Plantings Fall 2016	2700	Each	\$2.00	\$	5,400.00			5,400.00	\$	5,400.00	
Custom Native Willow Tubling Plantings Spring 2017	2000	Each	\$3.75	\$	7,500.00	4,880.00		2,620.00	\$	7,500.00	
Dormant Willow Stem Plantings Spring 2017	2000	Each	\$2.00	\$	4,000.00		-	4,000.00	\$	4,000.00	
				\$	-				\$	-	
				\$	-				\$	-	
				\$	-				\$	-	
				\$	-				\$	-	
				\$	-				\$	-	
			Sub-Total	\$	23,900.00	4,880.00	-	19,020.00	\$	23,900.00	
To be installed by TNC staff/volunteers											
TOTALS						\$	61,010.00	\$	25,000.00	\$	-
						\$	-	\$	36,010.00	\$	61,010.00

*Units = feet, hours, inches, lump sum, etc.

**Can include in-kind materials. Justification for in-kind labor (e.g. hourly rates used for calculations). Describe here or in text.

***The Future Fisheries Review Panel recommends a maximum fencing cost of \$1.50 per foot

MATCHING CONTRIBUTIONS (do not include requested funds)

CONTRIBUTOR	IN-KIND SERVICE	IN-KIND CASH	TOTAL	Verified? (Y/N)
USFWS - Partners for Wildlife Program	\$ -	\$ 5,000.00	\$ 5,000.00	Y
TNC Collins Grant (previously awarded)	\$ -	\$ 8,000.00	\$ 8,000.00	Y
TNC General Donations	\$ -	\$ 23,010.00	\$ 23,010.00	N
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	
	\$ -	\$ -	\$ -	

BUDGET TEMPLATE SHEET FOR FUTURE FISHERIES PROGRAM APPLICATIONS

	\$	-	\$	-	\$	-	
	\$	-	\$	-	\$	-	
	\$	-	\$	-	\$	-	
	\$	-	\$	-	\$	-	
TOTALS	\$	-	\$	36,010.00	\$	36,010.00	



Montana Fish, Wildlife & Parks

Dillon Field Office Fisheries Management 730 ½ N. Montana Dillon, MT 59725
Phone: (406) 683-9310 Fax: (406) 683-4126 email: mattjaeger@mt.gov

24 November 2015

Montana Fish, Wildlife & Parks
Habitat Protection Bureau
PO Box 200701
Helena, MT 59620-0701

Dear Future Fisheries Review Panel,

Montana Fish, Wildlife & Parks (FWP) is pleased to express its strong support for The Nature Conservancy's restoration project on Long Creek in the Centennial Valley in Montana.

FWP has worked with The Nature Conservancy and other partners in the Centennial Valley for the past few years to develop stream restoration alternatives for incised channels that are disconnected from their floodplains and resultantly have impaired hydrologic and riparian function. This is an issue that is pervasive throughout southwest Montana and has wide ranging implications on the fish and wildlife we manage; however, lack of cost effective and relatively expedient restoration alternatives limit our ability to address these impairments on a large scale. The installation of structures that raise water surface elevation and improve floodplain connectivity appears to be one of the best methods for improving incised channels, riparian health, and ultimately important fishery habitat.

Long Creek supports a population of Arctic grayling, a Montana Species of Concern, and restoration of its habitat is among our highest priorities for Arctic grayling conservation in the Centennial Valley. This work is a continuation of a similar project that was installed in October 2014 and will be complemented by an instream flow lease that FWP and TNC are also pursuing as part of broader habitat improvement and conservation in Long Creek.

FWP believes this project will have a beneficial effect on the Arctic grayling population and intends to monitor the response in the fishery as a project partner. Please don't hesitate to contact me if you have any specific questions about the effects of this project on the fishery or our broader management goals in Long Creek or the Centennial Valley.

Sincerely,

Matthew Jaeger
Fisheries Management Biologist



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Montana Partners for Fish & Wildlife
420 Barrett St.
Dillon, Montana 59725

November 20, 2015

Michelle McGree
Future Fisheries Improvement Program
1420 E 6th Avenue
Po Box 200701
Helena Montana
59620-0701

Dear Michelle,

Please accept this letter of support for the Nature Conservancy's application to the Future Fisheries Improvement Program for stream restoration on Long Creek in the Centennial Valley. Long Creek is the largest streams in the Centennial downstream of Red Rock Lakes. In 2010 Arctic grayling were documented in Long Creek for the first time since 1952. Since that time, the Conservancy, FWP, USFWS Partners for Fish and Wildlife, and private landowners have worked together to improve habitat on Long creek by changing the livestock grazing along nearly eight miles of the stream, planting several thousand willows, and initiated fishery population monitoring and is date flow monitoring. In 2014, deformable grade structures (i.e. constructed riffles) to reconnect floodplains were constructed to raise water levels for willow establishment, and reduce erosive energy on streambanks along two reaches downstream of Conservancy property. This novel approach represents a promising way to restore stream function and habitat complexity. This project will employ a similar floodplain reconnection approach on the Conservancy's reach of Long Creek.

The Nature Conservancy has prioritized Arctic grayling conservation by implementing projects to restore stream and riparian functions that will benefit many species and watershed health. To that end, we have conserved this tract with a USFWS conservation easement preventing all residential development, removed all grazing from the riparian area, and are working with FWP to change our senior water rights on Long Creek to instream flow and cooperating with neighboring landowners to expand restoration. This project is designed to spread flood flows across the floodplain, restore willow riparian communities, and ensure fish passage during late-season flows. Monitoring along this reach was initiated in 2010 in coordination with University of Montana – Western and FWP with cross-sections, pebble counts, photo-points, and electroshocking. Monitoring will be continued so we can evaluate if the project success and improvements to the stream channel and riparian corridor.

The USFWS Montana Partners for Fish and Wildlife Program is excited to be partners in this project and believes the project will benefit the stream and riparian habitat for Arctic grayling and many other species. The Partners Program has committed \$5,000 for this phase of stream restoration work. Thank you for considering this project.

Sincerely,

Jim Magee
Fish and wildlife Biologist
Montana Partners for Fish and Wildlife Program

Cc: Sierra Harris, Nathan Korb